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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
VALENTIN, JUAN D	

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/784,771	REINHORN, SILVIU	
	Examiner	Art Unit	
	Juan D. Valentin II	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,9,10,13-16,18,22,23,25,26,28 and 30* is/are rejected.

7)☒ Claim(s) *5,7,8,11,12,19-21,24,27 and 29* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02/24/2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 19 recites the limitation "each of the multiple *annular* beams" (emphasis added) in line 3. There is insufficient antecedent basis for this limitation in the claim. Claim 18 from which claim 19 depends does not disclose any annular beams. Applicant is asked to please correct the claim accordingly.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 20 discloses an other beam splitter (third beam splitter) into the optical inspection system, but in the fifth line of claim 20, applicant has claimed, "passing through *the beam splitter*" (emphasis added). Examiner is unsure as to which beam splitter is applicant referring to? It could be anyone of the first, second, or another beam splitter claimed. Proper correction is required in order to more clearly understand applicants claimed invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-47 rejected under 35 U.S.C. 102(b) as being anticipated by Shiraishi (USPN '123 B1).

Claims 1

Shiraishi discloses in conjunction with Fig. 1, an optical inspection system, comprising a light source 1 outputting an annular beam 6, an objective lens 9 focusing the annular beam at a target 11, and a detector 28 receiving light scattered from the target, through the objective lens 9 (col. 16, line 30, -col. 17, line 25).

Claims 2 & 3

Shiraishi as applied above further discloses the light source also outputs a circular beam selected from one of an annular or circular beam, the objective lens focuses the circular beam at the target, and the detector receives light reflected from the target through the objective lens 9 (col. 16, line 30, -col. 17, line 25).

Claim 4

Shiraishi as applied above further discloses wherein when the imaging operation type is bright field imaging, the light source is controlled to produce a circular beam, and when the image operation type is dark field imaging, the light source is controlled to produce an annular beam (col. 17, line 64-col. 18, line 20).

4. Claims 1- 3, 6, 15, & 16 rejected under 35 U.S.C. 102(b) as being anticipated by Ando (USPN '592).

Claims 1, 2, 3, 6,

Ando discloses in conjunction with Figs. 1 –53, a light source outputting an annular light beam (Fig. 2, item 10 which produces the annular beam from laser element 112 (claim 1, col. 6, lines 3-45, col. 79, lines 33-43, it is noted that the annular beam is also a circular beam), an objective lens 120 focusing the annular beam at a target R_m, a detector 128 receiving light scattered from the target, through the objective lens 120 (col. 7, claim 1, col. 7, line 17-col. 8, line 23). Ando as applied above further discloses outputting a circular beam from the light source 112, col. 6, lines 3-459 col. 7, lines 55-64 note that the annular beam is also circular beam; focusing the circular beam at the target (col. 7, lines 52-55) and detecting light reflected from the target (claim 2, col. 8, lines 4-13). Ando as applied above further discloses an optical inspection method further comprising selecting an imaging operation type, producing a selected one of the annular beam and the circular beam based in response to a selection of imaging operation type (both annular and circular portions are used for inspection), (claim 3, col. 7, line 65-col. 8, line 13). Ando as applied above further discloses a scanner scanning the annular beam along a line in a given scanning direction to provide a scanned single annular beam, and a multiple beam splitter producing multiple annular beams of substantially identical intensity from the scanned single annular beam (col. 16, lines 7-22, col. 6, lines 57-60, col. 7, lines 33-67).

Claim 15

Ando in conjunction with Fig. 2 discloses a light source outputting a beam 112, a confocal optical arrangement 124, 126, & 128, and optics for focusing the beam at a target and directing captured light to a detector through the confocal optical arrangement 124, 126, & 128 (col. 18, line 50-col. 19, line 2).

Claim 16

Andu as applied above further discloses a control unit controlling the focus optics (col. 26, lines 1-14) based on a light level threshold, and a light level signal indicative of light received by the detector through the confocal optical arrangement (col. 18, line 50-col. 19, line 2).

5. Claims 9, 13, & 14 rejected under 35 U.S.C. 102(b) as being anticipated by Hill (USPN '923).

Claim 9

Hill in conjunction with Figs. 1-11E, discloses a light source an optical inspection system comprising a light source outputting a single beam, a scanner scanning the single beam along a line in a given scanning direction to provide a scanned single beam (col. 3, lines 10-14), and a multiple beam splitter producing multiple beams of substantially identical intensity from the scanned single beam (col. 3, lines 14-32).

Claim 13

Hill in conjunction with Figs. 1-11E, discloses a light source outputting a beam (col. 3, lines 10-14), and a scanner scanning the beam in a beam spot across a target, the target being movable in a target movement direction, where the beam has a scanning direction not perpendicular to the target movement direction (Fig. 1, col. 6, lines 32-44 & col. 3, lines 14-32).

Claim 14

Hill as applied above further discloses wherein the beam spot travels a distance in the mechanical scanning direction that is greater than the distance in between scan lines in the

mechanical scanning direction (Fig. 6A-refs. 533 & 534, Fig. 5A-refs. 433, 434, & a, col. 25, lines 28049, & col. 26, lines 30-53). Examiner notes that although no specific measurement of the mechanical distance between the two beams, nor the mechanical distance that they travel, is explicitly mentioned, the observation of the drawings, listed above, along with the corresponding text, shows that the mechanical distance that the two beams travel, is greater that than the mechanical distance between them.

6. Claims 18, 22, 23, 25, 26, & 30 rejected under 35 U.S.C. 102(b) as being anticipated by Nakasuji (USPN '224).

Claim 18

Nakasuji in conjunction with Fig. 3B, discloses a light source 1 providing a beam of light through a pupil, a multiple beam splitter receiving the light through the pupil, a scanner receiving the multiple beams and providing scanned multiple beams, a beam splitter receiving the scanned multiple beams and illuminating a target through an objective lens, the objective lens collecting light returned back from the illuminated target and passing the collected light through the beam splitter to an imaging lens the imaging lens receiving the light passing through the beam splitter and focusing the light to a bright field channel detector (abstract, col. 2, lines 1-16, & line 65-col. 3, line 3, col. 11, lines 24-42).

Claim 22

Nakasuji in conjunction with Fig. 3B, discloses a light source 1 providing a beam of light, a scanner receieving the light through a first beam splitter and providing scanned light, a scond beam splitter receiving the scanned light through a scan lens, and illuminating a target through an

objective lens, the objective lens collecting light returned from the illuminated target and passing the collected light to the second beam splitter, the second beam splitter providing part of the collected light, as a returned light signal, back through the scan lens and scanner to the first beam splitter, the first beam splitter deflecting the returned light signal through a focusing lens and a pinhole, and one or more detectors receiving the light through the pinhole (abstract, col. 2, lines 1-16, line 65-col. 3, line 3, col. 11, lines 24-42).

Claim 23

Nakasuji as applied above further discloses the light source provides the beam of light through a pupil, a multiple beam splitter receives the light through the pupil, the light received by the scanner includes multiple beams provided by the multiple beam splitter, and the light scanned by the scanner includes multiple scanned beams, the second beam splitter provides part of the collected light through an imaging lens to a bright field channel detector (abstract, col. 2, lines 1-16, line 65-col. 3, line 3, col. 11, lines 24-42).

Claims 25 & 26

Naksuji as applied above further discloses a third beam splitter optically disposed between the imaging lens and the bright field channel detector, and the light from the imaging lens passing through the third beam splitter being focused also on a dark field channel detector (abstract, col. 2, lines 1-16, line 65-col. 3, line 3, col. 11, lines 24-42).

Claim 30

Naksuji as applied above further discloses the target is movable in a target direction, and the scanner scans with a scanning direction not perpendicular to the target movement direction (col. 9, lines 42-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Hill in view of Tanitsu et al. (USPN '394 B1, hereinafter Tanitsu).

Claim 10

Hill substantially teaches the claimed invention except that it fails to show wherein the multiple beam splitter produces the multiple beams with a diffractive optical element having uniform diffraction efficiency. Tanitsu shows that it is known to provide an multiple beam splitter produces the multiple beams with a diffractive optical element having uniform diffraction efficiency (col. 5, lines 42-47) for an beam steering apparatus. It would have been obvious to someone of ordinary skill in the art to combine the device of Hill with the production of multiple beams performed with a diffractive optical element having uniform diffraction efficiency of Tanitsu for the purposes of providing form controlling of the second light source (i.e. precluding the quantity and quality of the diffracted light from diminishing as the zeroth-order of light is maintained), so that the beam will maintain a concentrated focus.

8. Claim 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Nakasuji in view of Tanitsu.

Claim 28

Nakasuji substantially teaches the claimed invention except that it fails to show wherein the multiple beam splitter produces the multiple beams with a diffractive optical element having uniform diffraction efficiency. Tanitsu shows that it is known to provide a multiple beam splitter produces the multiple beams with a diffractive optical element having uniform diffraction efficiency (col. 5, lines 42-47) for an beam steering apparatus. It would have been obvious to someone of ordinary skill in the art to combine the device of Nakasuji with the production of multiple beams performed with a diffractive optical element having uniform diffraction efficiency of Tanitsu for the purposes of providing form controlling of the second light source (i.e. precluding the quantity and quality of the diffracted light from diminishing as the zeroth-order of light is maintained), so that the beam will maintain a concentrated focus.

Allowable Subject Matter

9. Claims 5, 7, 8, 11, 12, 19, 20, 21, 24, 27, & 29 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan D. Valentin II whose telephone number is (571) 272-2433. The examiner can normally be reached on Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Juan D Valentin II
Examiner 2877
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May 30, 2006

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